

# Climate Change--- the New Normals

**By Don Simonsen, General Forecaster**

The National Climatic Data Center, has recently begun implementing new 30-year normals based on the years 1981-2010. You can view the press release on this and the FAQ's at: <http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html>. Thirty years of data is used, which is the worldwide standard, and is updated every 10 years to reflect our ever-changing climate. It is important for data to reflect the most up-to-date trends, but also to have enough data to ensure that those trends are significant and representative. Therefore, 30 years of data is a compromise that is usually used, rather than 10 years, 100 years, or some other time period.

Warmer and wetter continues to be the climatic trend for Northeast Montana. When the 1971-2000 normals came out 10 years ago, it reflected that trend as it replaced the previous 1961-1990 normals. Our new 1981-2010 normals continue these same trends of warmer and wetter. And yet, while the record-breaking rainfall and snowfall seen in 2011, is not compiled in these new normals, it may give just a glimpse of these same trends again. The average temperature for the year as a whole has warmed 0.6 degrees in this time period. Nine of the 12 months of the year did grow warmer in the new normals. January in particular stood out by warming 3.0 degrees over the previous 1971-2000 normals. November gained 1.4 degrees.

Normal precipitation gained an amazing 0.43 inch for the year. While most monthly changes were small, there were significant rises in amounts for all of the spring months, which is typically the wetter time of the year anyway. The new May normals are 0.20 inches wetter than previous, while June is 0.13 inches wetter than the previous normals.

Average season snowfall is now 36.1 inches, compared to 30.0 inches in the 1971-2000 normals. This is another startling change, as December gained an inch and a half, and January two and a half inches more snowfall above the previous normals.

While the most notable change is the warmer and snowier winters, it is interesting that the past five Februarys have all been below normal. This includes 2011 which again was not part of the new normals package. The other notable trend is in the cooler and wetter conditions of both May and June in recent years, which represents what appears to be a trend toward later summer arrivals. Four Mays in a row have been cooler than normal and 4 of the last 5 Mays have been wetter than normal. The change in June climate has been most startling, as 9 of the last 11 Junes have been cooler than normal, and 11 of the past 13 Junes have been wetter than normal. The trend toward later summers was seen in a different way in the 1990s, when 10 years in a row had August being hotter than July.

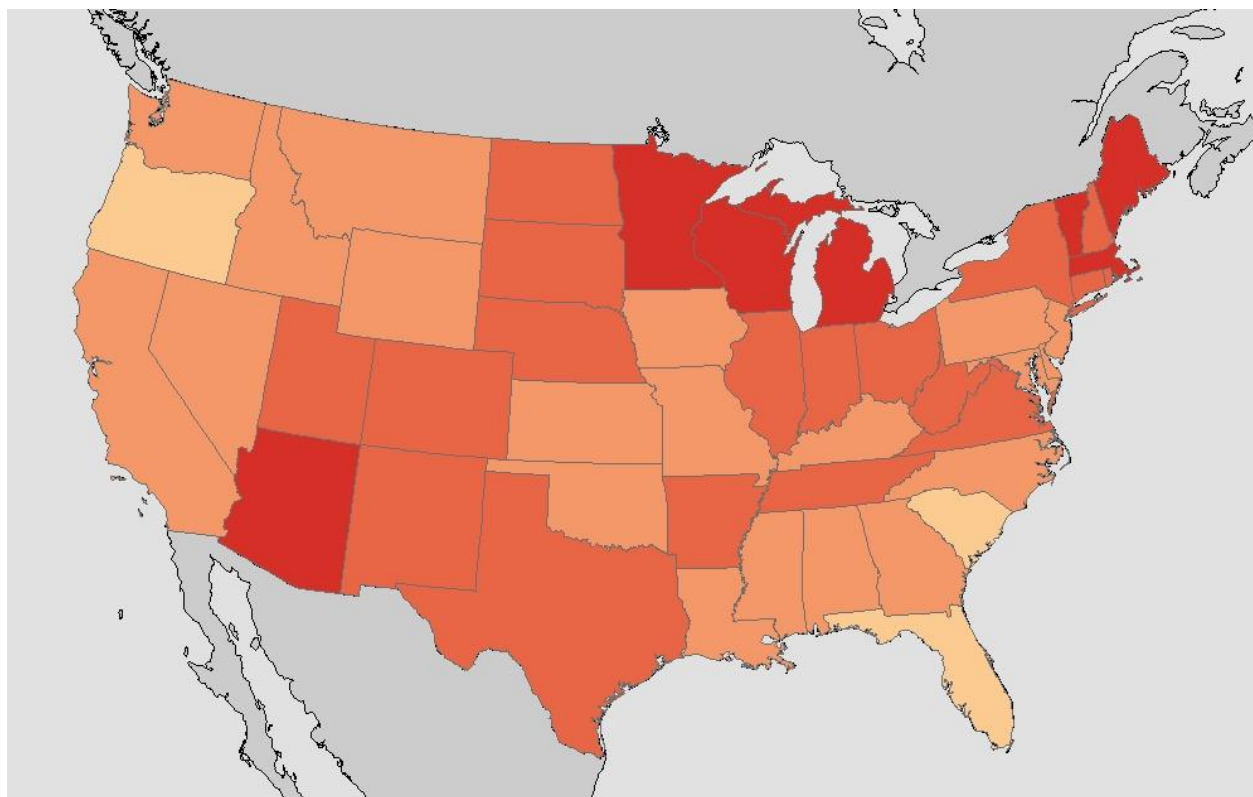
A few other interesting facts in regard to snowfall: Seven of the last 13 Mays have had measurable snowfall. Before 1953, there had only been one measurable snowfall in May, in records going back to 1896. Measurable September snowfalls have occurred 11 times, but

there hasn't been any since 1985. March had no measurable snowfall in either 2007 or 2010. Meanwhile, a single, very unusual Columbus Day snowstorm in 2007 produced 13.6 inches, smashing the all-time October snowfall record in one day.

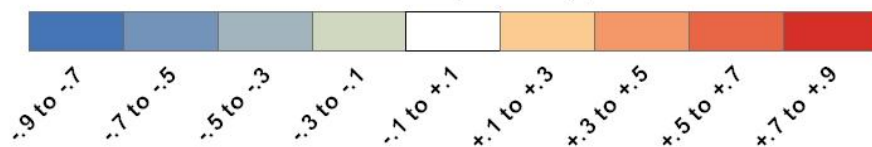
For reasons why the climate changes, including the much-discussed, and often controversial global warming, see the previous 10-part climate change series.

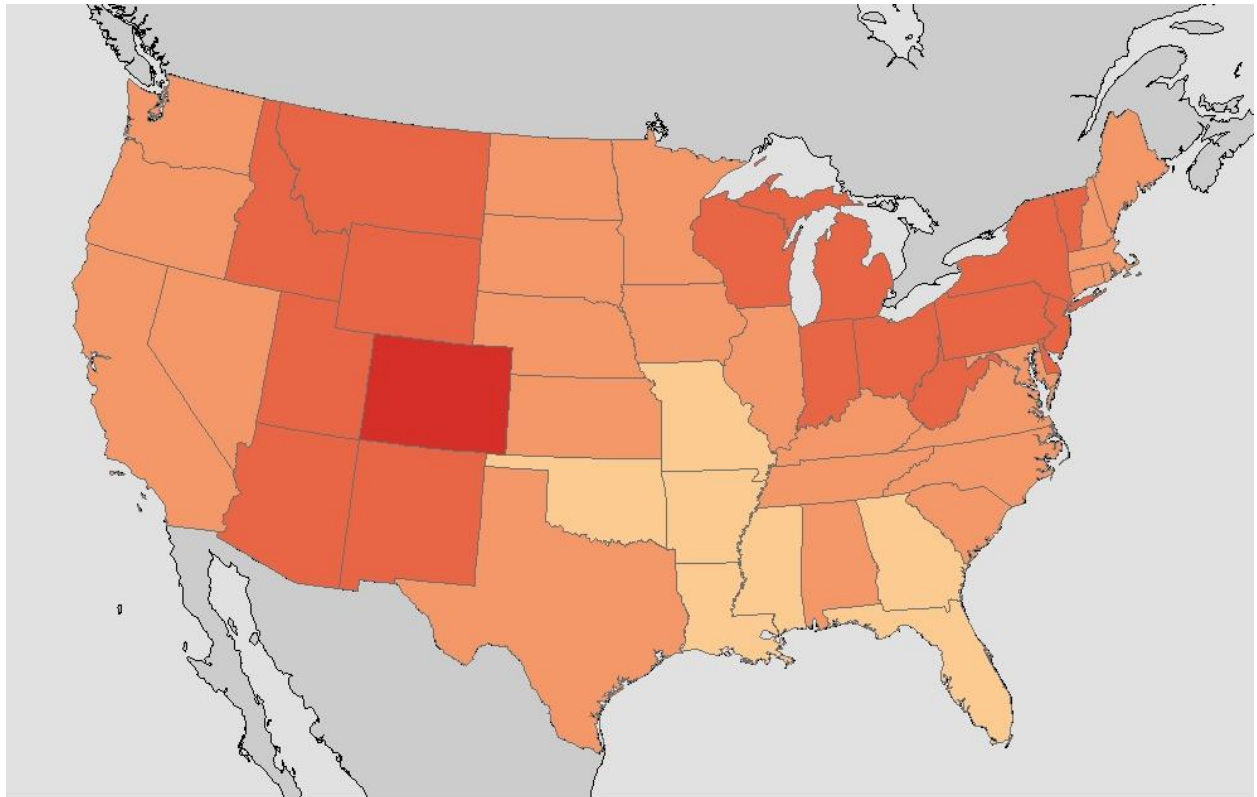
<http://www.wrh.noaa.gov/ggw/newsletter/archive.php>

Note the startling changes in the new normals on the 2 maps below. Both the average yearly state maximum and average yearly state minimum temperature warmed up from the previous 30-year normals in every state. Although not reflected on these 2 maps, there was a small area in the middle of the U.S. that had a slight cooling of high temperatures from previous 30-year normals during the summer months.



**Statewide Differences Between the 1981-2010 and 1971-2000 Normals  
Minimum Temperature (F)**





**Statewide Differences Between the 1981-2010 and 1971-2000 Normals  
Maximum Temperature (F)**

